

What is claimed is:

1. A connector for injecting fluid to a catheter, comprising:
 - an attachment portion adapted to fluidly couple to a source of pressurized fluid;
 - a bypass element fluidly connected to the attachment portion, the bypass element being adapted to open a valve of the catheter; and
 - an overpressure control element adapted to maintain a pressure of fluid within the connector below a predetermined threshold level.
2. The connector according to claim 1, wherein the bypass element comprises an elongated tubular component insertable into the catheter through a valve of the catheter.
3. The connector according to claim 2, wherein the elongated tubular component has a diameter selected to fit in a flow opening of the valve of the catheter.
4. The connector according to claim 2, wherein the elongated tubular component is hypotube.
5. The connector according to claim 2, wherein the elongated tubular component includes an outlet which, when the elongated tubular component is inserted into the catheter through the valve, is located distally of the valve.

6. The connector according to claim 2, wherein the bypass element directs fluid into the catheter so that the fluid passes through the catheter without passing through the valve.
7. The connector according to claim 1, wherein the overpressure control element comprises a pressure relief valve.
8. The connector according to claim 1, wherein the overpressure control element comprises a controlled failure element designed to fail when a fluid pressure therein reaches the threshold level.
9. The connector according to claim 8, wherein the controlled failure element is an extension tube.
10. The connector according to claim 1, further comprising an external collection jacket disposed around the overpressure control element.
11. The connector according to claim 1, wherein the bypass element is adapted to open a pressure actuated safety valve of a venous catheter.
12. The connector according to claim 1, wherein the attachment portion is adapted to connect to a contrast media power injection system.
13. The connector according to claim 1, wherein the threshold level is selected to be less than a burst pressure of a catheter with which the connector is to be used.
14. The connector according to claim 13, wherein the threshold level is approximately 300 psi.

15. The connector according to claim 14, wherein the threshold level is approximately 100 psi.
16. The connector according to claim 13, wherein the threshold level is approximately 80 psi.
17. The connector according to claim 16, wherein the threshold level is approximately 40 psi.
18. A fluid coupler comprising:
 - an elongated tube extending between a first end adapted for fluid connection to a power injector and a second end adapted for fluid connection to a catheter, the second end being insertable into the catheter beyond a proximal part thereof so that fluid from passes through the fluid coupler into the catheter to a distal end thereof without passing through the proximal part; and
 - a pressure control element adapted to limit a fluid pressure within the coupler to a predetermined threshold level.
19. The coupler according to claim 18, wherein the elongated tube is a hypotube.
20. The coupler according to claim 18, wherein the proximal part of the catheter includes a valve and wherein the elongated tube is adapted to open the valve when inserted in the catheter.
21. The coupler according to claim 18, wherein the pressure control element comprises a section having a burst pressure lower than a burst pressure of the catheter.

22. The coupler according to claim 18, wherein the pressure control element comprises an extension tube connected to the first end.
23. The coupler according to claim 18, wherein the pressure control element comprises a pressure relief valve.
24. The coupler according to claim 18, further comprising a fluid collection jacket surrounding the pressure control element.